



CONSTRAINTS TO YAM (*DIOSCOREA SPP*) PRICE FORMATION IN THE URBAN AND RURAL MARKETS OF THE CENTRAL AGRICULTURAL ZONE OF NASARAWA STATE, NIGERIA

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ABSTRACT

Price formation of yam in the urban and rural markets of the Western agricultural zone of Nassarawa State, Nigeria has been an issue as many factors has been found to be contributing factors in the formation of yam price in the study area. Well-structured questionnaire was used to source for data from 141 hundred randomly selected yam marketers from the urban and rural markets in the zone, the rural markets were Andaha, Anguwan Zaria, Sabon Gida and Gudi while the urban markets includes Garaku, Akwanga, Nassarawa Eggon and Wamba. Descriptive statistic such as frequency, mean, and percentages was used to analyze the data. The result obtained revealed that majority (60%) and (62.5%) were male in the urban and rural markets respectively, with the mean ages of 47 years and 43.9 years respectively. The mean household size was 7 and 6 members for the urban and the rural households respectively. The average yam prices in ₦/kg in the urban /rural markets shows that the highest price was recorded in the urban market (Nassarawa Eggon) and the least price recorded in the rural market (Andaha), the Jarque-Bera test of normality shows that the prices of yam were normally distributed, of all the constraints to yam price formation, poor feeder roads, few number of buyers ranked most in the urban while poor feeder roads, and inadequate access to credit facilities ranked topmost in rural markets. Therefore the research suggests a deliberate government policy towards rehabilitation of roads linking the rural and urban markets, and this may enhance trade between urban and rural markets.

KEYWORD: Yam, price, formation, socio-economic, urban, rural

INTRODUCTION

Nigeria economy is a primary product oriented and dominated by agriculture and crude oil production. Agriculture's share of export was 75 per cent in 1965 but declined to mere 3 per cent in 2012. It's contribution to GDP was 63 per cent in 1960 but declined to 34 per cent in 1988, 33.4 per cent in 2009 and 30.9 per cent in 2012 (Ignite, 2013), while in 2018 it was 21.65 per cent (EIA, 2019). It is recognized that the agricultural sector has the critical role as it support expansion in the industrial sector, enhances foreign exchange earnings, provides food for the teeming population, provides gainful employment, creates Sufficiency and is undermining the needed expansion and growth in the agricultural sector vision 20:2020 (Ignite, 2013). As at 1985, an estimated 96 percent of the core poor in Nigeria lived in the rural areas (CPED, 2014). The OECD / FAO (2019) has stated that Nigeria is facing food security crisis due to low productivity, a growing population (particularly in rural area) as well as the rising cost of food, while the petroleum sector employ about 1 per cent of the total workforce, agriculture in Nigeria was reported to employ 36.62 per cent in 2017 (World Bank, 2018). Agricultural exports are negligible and represent about 0.2 per cent of total exports. Nevertheless, as at 2018, over 86.9 million Nigerian's live in extreme poverty with majority living in the rural area. Nigeria faces a major population boom

wealth and reduces poverty on a sustainable basis. Agricultural sector is also critical for the attainment of a key pillar in the nation's vision 20:2020 and the second goal of the sustainable development goals which is to end hunger, achieve food security and improve nutrition and promote sustainable agriculture. However, productivity in the agricultural sector is still lower than the global average, in spite of the number of policy measures over the last 20 years, value added per capita in agriculture has raised by less than 1 per cent annually. Rising food and raw material input bills is declining the levels of food self- (SDG: 2019). Agricultural output was given a boost of 20 percent in the structural adjustment (SAP) years 1986-91 by a combination of higher prices for producers made possible by the elimination of the agricultural marketing boards and by an exchange rate devaluation which encouraged exports of agricultural Products. Since 2006 the global prices of agricultural commodities have increased substantially, the prices of maize, wheat, and soybean more than doubled (Minot, 2010). The price increase was attributed to a number of causes which include high petroleum prices, increasing population, disposable income and weather related shocks. The global food crisis may have been particularly severe in Sub-Saharan Africa (SSA) because a large percentage of households are net buyers

of staple food crops. So they are hurt by higher food prices and as a consequence of the low incomes in the region where food accounts for a large share of the household budgets, often in the range of 50 to 70 percent (Tuyishime, 2014). According to Shimiles (2010) the implication of that food price increase could significantly slow down the pace of poverty reduction in a country that has otherwise recorded remarkable growth in the last couple of years. Yams are the fifth most harvested crops in Nigeria, following after cassava, maize, guinea corn and beans/cowpea (Nahanya and Vera, 2014). More so, after cassava, yams are the most commonly harvested tuber crops in the country (National Bureau of Statistics, 2012). Yam does not only serve as the main source of earnings and food consumption, but also as a major employer of labor in Nigeria. Despite the importance of yam to people, the attention to its production is still questionable (Nahanya and Vera, 2014). In Nigeria,

Bamire and Amujoyegbe (2005) finds a positive relationship between net returns (profitability) in yam output and land improvement techniques in Nigeria. Zaknayiba and Tanko (2013) revealed that lack of access to inputs, finance, poor producer prices, inadequate storage facilities, incidence of pest and diseases have negatively affected yam production. Published empirical works within the context of yam in Nigeria and Nassarawa State has been mainly field research; none has used time series data on prices to determine price variations and constraints to price formation. Therefore to achieve these, the following objectives were achieved.

- i. Examine the socio-economic characteristics of yam marketers in the urban and rural markets.
- ii. Examine the price formation channels and;
- iii. Examine the constraints to yam price formation in the urban and rural markets.

MATERIAL AND METHODS

Study Area

Nasarawa State is a State in central Nigeria. Its capital is Lafia. Nassarawa State is centrally located in the Middle Belt region of Nigeria. The State lies between latitude 7°45' and 9°25' N of the equator and between longitude 7° and 9°25' E of the Greenwich meridian. It shares boundary with Kaduna State in the North, Plateau State in the East, Taraba and Benue States in the south while Kogi and the Federal Capital Territory flanks it in the West. The State has a total land area of 27,137 square kilometers and a population of about 1,826,883, according to the 2006 population Census estimate with a density of about 67 persons per square

kilometer. The State is made up of thirteen Local government areas which are Karu, Keffi, Kokona, Nassarawa, Toto, Akwanga, Nassarawa Egon, Wamba, Awe, Doma, Keana, Lafia, and Obi (NADP, 2010). The State has a large number of yam markets categorized into urban and rural markets where yams are assembled. Most of the rural markets are periodic in nature (weekly) except for urban markets which operates most often. This attracts market participants not only from within the State but from all over Nigeria.

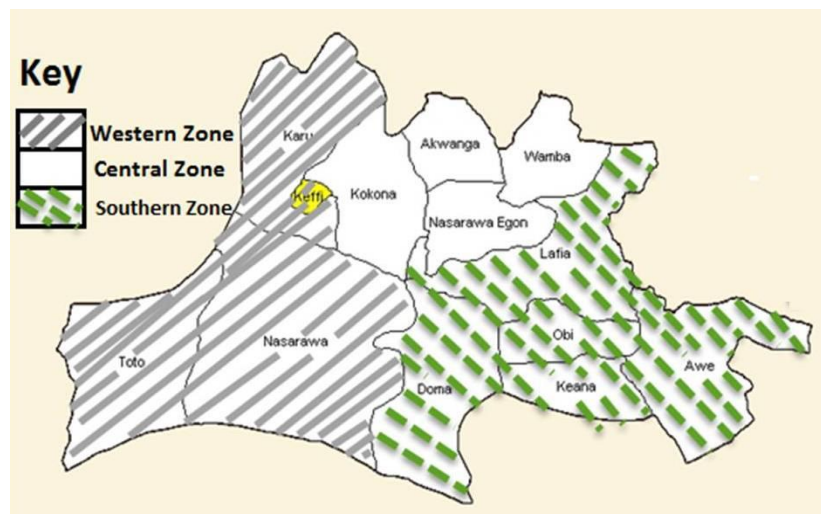


Figure 1: Map of Nassarawa State showing the agricultural zones

Data Collection

Both primary and secondary were used. Primary data was collected through the use of structured questionnaire which includes age, marital status, and years of marketing experience, sex, educational status, and constraints to yam price formation using likert-scale. While secondary data on prices of yam were sourced from Nassarawa State Agricultural Development Programme.

Sampling Technique and sample size

The sampling technique was multi-stage. In the first stage, Nasarawa State was clustered into three agricultural zones based on Nassarawa State Agricultural Development Programme (NADP) classification namely: Western zone, Central zone and Southern zone and a purposive selection of the Central zone. In the second stage, was the purposive selection of four (4) urban and four (4) rural markets from the

agricultural zone based on the yam marketing activities. In the third stage, 141 yam marketers/traders were selected from a total of 705 marketers using random sampling technique based on the proportionality allocation technique. In this study, sampling frame includes all yam marketers in the study area. According to Gneezy (2017), the use of probability method such as random sampling to derive the final sampling unit improves the precision of the estimates, ensures representativeness, and permits hypothesis testing. A critical assumption in the probability sampling process is that the sample matches the target population’s characteristic. Proportionate sampling was used to select the sample size based on the sampling frame. The sample size was estimated with reference to Barlett *et al.*, (2001).

Table 1: Sample size determination and selection plan for the study

| Agricultural zone | Market type | Market | Sample frame | Marketers selected Sample size (20% proportion) |
|-------------------|-------------|----------------|--------------|-------------------------------------------------|
| Central Zone | Rural | Andaha | 30 | 6 |
| | Rural | Anguwan Zaria | 60 | 12 |
| | Rural | Sabon Gida | 50 | 10 |
| | Rural | Gudi | 45 | 9 |
| | Urban | Garaku | 75 | 15 |
| | Urban | Akwanga | 165 | 33 |
| | Urban | Nasarawa Eggon | 155 | 31 |
| | Urban | Wamba | 125 | 25 |
| Total | | | 705 | 141 |

The proportionality factor:

$$S = \frac{p}{Q} P \dots (1)$$

S = Sample size

p = population of yam marketers at each location.

P = Total population of yam marketers in the study area.

Q = Total questionnaires administered (Barlett et al., 2001)

Analytical Techniques / Tool

There are many analytical techniques / tools available for use in research of this kind and the choice of a particular one depends on the available data type collected in order to achieve the specific objectives.

Descriptive statistics: Frequency, percentages, mean, range, and standard deviation.

RESULTS AND DISCUSSION

An understanding of the socio economic characteristics of the yam marketers is expected to provide a clear picture of the general features prevailing in the study

Socio-economic Characteristics of the Yam Marketers in the Study Area

area. Therefore an attempt has been made in the study to analyze some of the important socio economic variable which include, age, marital status, educational

levels, and years of marketing experience, sex, and household size. This is divided into two parts, that is the quantitative and the qualitative socio-economic variables (Tables 2 and 3).

From the result in Table 2, 42.5% of the respondents were within their youthful age and the age range of 20 - 40 years in the urban markets and 47.5% within the age range of 20-40 years in the rural markets. The average age was approximately 48 years and 44 years in the urban and rural markets respectively. This indicates that the respondents were in their active work life and can engage in diverse income generating activities. This is in line with the findings of Joshua, 2015; Shehu and Mohammed, 2017, who also found out that marketers ages lies between 30 -59 years. The result also revealed that 89.2% of the urban and 88.8% of the rural respondents had 1 -10 persons in their household, with an average of 7 and 6 persons per household in the urban and rural respondents respectively, increasing family size could help in the marketing of yam in the study area, this is in line with the findings of Aremu et

al., 2016; Shehu and Mohammed, 2017; Sanusi and Dada, 2016. Approximately 57% and 60% had 1 -10 years marketing experience in the urban and rural markets respectively with an average of 12.4 years and 9.3 years marketing experience in the urban and rural markets respectively, this is in line with the findings of Rabirou et al., 2018. The results in Table 3 showed that majority of the marketers in the urban (60%) and in the rural (62.5%) were male. This could be as a result of Islam being the pre-dominant religion in the study area and most do not allow their wives to work. Majority (71.7%) and (52.5%) of respondents in the urban and rural markets were married this is in line with the findings of Rabirou et al., 2018; Abah and Tor, 2012, and Katanga et al., 2016. Also 94.2% and 95.1% in the urban and rural markets attained one form of education or the other. This could help in their decision making process. Majority of the respondents in the urban and rural markets (98.3% and 100%) sold white yam with only 1.7% selling yellow yam in the urban markets.

Table 2: Quantitative socio-economic variables of yam marketers in the Central zone

| Quantitative variables | Urban markets(n=104) | | Rural markets(n=37) | |
|-------------------------------|----------------------|------------|---------------------|------------|
| | Frequency | percentage | Frequency | percentage |
| Age (Yrs) | | | | |
| 21-30 | 28 | 26.90 | 10 | 27.04 |
| 31-40 | 38 | 36.50 | 13 | 35.14 |
| 41-50 | 22 | 21.20 | 9 | 24.32 |
| 51-60 | 12 | 11.50 | 5 | 13.51 |
| 61-70 | 4 | 3.90 | - | - |
| Mean | 38.7 | | 39.1 | |
| SD | 10.7 | | 10.2 | |
| Min | 21 | | 24 | |
| Max | 65 | | 60 | |
| Household size(no of persons) | | | | |
| 1-5 | 45 | 43.00 | 10 | 27.03 |
| 6-10 | 52 | 50.00 | 16 | 43.24 |
| 11-15 | 7 | 7.00 | 11 | 29.73 |
| Mean | 6 | | 9 | |
| SD | 2.7 | | 3.5 | |
| Min | 3 | | 3 | |
| Max | 15 | | 15 | |
| Marketing experience(years) | | | | |
| 1-10 | 74 | 71.10 | 33 | 89.20 |
| 11-20 | 29 | 27.90 | 4 | 10.80 |
| 21-30 | 1 | 0.96 | - | - |
| Mean | 8.6 | | 7 | |
| SD | 5.0 | | 2.9 | |
| Min | 2 | | 3 | |
| Max | 30 | | 15 | |

Source: Field survey, 2018

Table 3: Qualitative socio-economic variables of yam marketers in the zone

| Quantitative variables | Urban markets(n=104) | | Rural markets(n=37) | |
|------------------------------|----------------------|------------|---------------------|------------|
| | Frequency | percentage | Frequency | percentage |
| Sex | | | | |
| Male | 49 | 47.10 | 13 | 35.10 |
| Female | 55 | 52.90 | 24 | 64.90 |
| Marital Status | | | | |
| Single | 20 | 19.20 | 4 | 10.80 |
| Married | 65 | 62.50 | 28 | 75.70 |
| Widowed | 3 | 2.90 | 1 | 2.70 |
| Divorced | 10 | 9.60 | 2 | 5.40 |
| Separated | 6 | 5.80 | 2 | 5.40 |
| Educational status | | | | |
| Never been to school | 17 | 16.30 | 9 | 14.52 |
| Primary | 31 | 29.80 | 7 | 11.30 |
| Secondary | 44 | 42.30 | 18 | 29.03 |
| Adult education | 4 | 3.80 | 27 | 43.54 |
| Tertiary | 8 | 7.70 | 1 | 1.61 |
| Varieties of yam sold | | | | |
| White yam | 118 | 98.30 | 80 | 100 |
| White/ yellow yam | 2 | 1.70 | - | - |

Source: Field survey, 2018

Descriptive statistics of yam prices in ₦/ kg in the rural and urban markets of Central zone

The descriptive statistics of yam prices in naira per kilogram in the rural and urban markets of the central zone is presented in Table 4

Table 4: Descriptive statistics of average yam prices in ₦/ kg in rural and urban markets of the Central zone.

| | Rural markets | | | | Urban markets | | | |
|--------------|---------------|---------|--------|--------|---------------|---------|---------|--------|
| | Andaha | A/Zaria | S/Gida | Gudi | Garaku | Akwanga | N/Eggon | Wamba |
| Mean | 58.80 | 58.95 | 87.95 | 77.20 | 95.54 | 86.95 | 95.93 | 87.95 |
| Median | 30.75 | 30.45 | 68.76 | 54.12 | 64.66 | 62.50 | 76.92 | 68.79 |
| Maximum | 283.70 | 270.30 | 312.50 | 310.81 | 392.16 | 324.32 | 294.12 | 312.50 |
| Minimum | 13.10 | 11.63 | 13.95 | 15.53 | 28.57 | 29.41 | 33.33 | 13.95 |
| Std.Dev | 61.21 | 61.72 | 64.97 | 58.55 | 73.95 | 62.32 | 55.05 | 64.97 |
| Skewness | 2.03 | 1.84 | 1.55 | 1.75 | 1.96 | 1.94 | 1.72 | 1.55 |
| Kurtosis | 6.55 | 5.70 | 5.10 | 6.20 | 6.38 | 6.32 | 5.44 | 5.10 |
| Jarque-Bera | 101.65 | 72.82 | 49.03 | 75.50 | 93.63 | 90.92 | 62.23 | 49.03 |
| Prob-value | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Observations | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 |

Source: Computation from NADP data, 2012-2018

The descriptive statistics in Table 4 shows that the lowest average price of yam per kg in the rural markets was recorded in Andaha (₦58.20/kg) while the lowest average price of yam in the urban markets was recorded in Akwanga (₦86.95/kg). The highest price of yam per kg in the rural markets was recorded in S/Gida (₦312.50/kg) while the lowest was recorded in A/Zaria (₦11.63/kg). In the urban markets the highest price was recorded in Garaku (₦392.16/kg) with the lowest recorded in Wamba (₦13.95/kg). The skewness and the kurtosis show that the prices were positively skewed and were leptokurtic with values higher than 3.

The Normality Test Result

Hypothesis

Ho: The prices of yam were normally distributed.

The result of the Jarque –Bera test statistics in Table 4 shows that the prices were normally distributed, looking at the probability level which is less than 0.05. So, the

null hypothesis that the prices of yam were normally distributed was accepted.

Most of the marketers double as the farmers also and thus bring their products (yam) to the rural markets which in turn are visited by the urban marketers. The prices are most times set by the forces of demand and are being manipulated by the rural assemblers and middlemen in the markets. This rural assemblers and middlemen with the help of the yam union officials manipulate the prices. On the side of the urban marketers they source for yam from the rural markets and at times from the farmers directly who also double as marketer. While in the urban markets the activities of middlemen do not frequently exist as the markets are more organized than the rural markets. In the rural markets you may be dealing with rural assemblers or middlemen thinking that you are dealing the original owner of the goods.

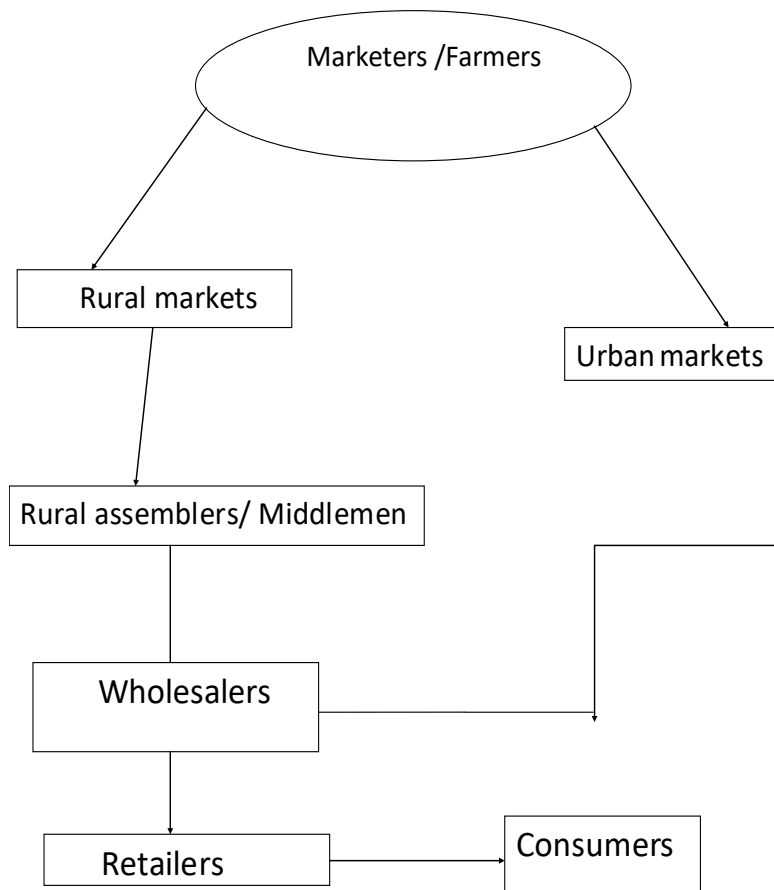


Figure 2: Price formation channel of yam prices in the urban and rural markets.

Constraints to Yam Price Formation in the Urban and Rural Markets of the Western zone

The severity of the constraints to yam price formation in the urban and rural markets of the western zone is indicated in Table 5.

Table 5: Constraints to yam price formation in the urban and rural markets of the central zone

| | Urban markets | | Rural markets | | |
|----------------------------------------|---------------|------------------|----------------------------------------|------------|------------------|
| Constraints | Mean score | Rank | Constraints | Mean score | Rank |
| Poor feeder roads | 3.82693 | 1 st | Poor feeder roads | 4.1351 | 1 st |
| Few number of buyer | 3.6442 | 2 nd | Inadequate access to credit facilities | 4.0541 | 2 nd |
| Breakage of yam | 3.6442 | 3 rd | High cost of transport | 3.7838 | 3 rd |
| Poor and inadequate storage facilities | 3.6250 | 4 th | Few number of buyers | 3.7297 | 4 th |
| Poor and inadequate storage facilities | 3.5481 | 5 th | Activities of middlemen | 3.7027 | 5 th |
| Activities of yam union officials | 3.5481 | 6 th | Activities of yam union officials | 3.6216 | 6 th |
| Activities of middlemen | 3.4808 | 7 th | Communal clashes | 3.0541 | 7 th |
| Pest infestation | 3.4519 | 8 th | Poor market information | 2.9459 | 8 th |
| Communal clashes | 3.4231 | 9 th | Breakage of yam | 2.8649 | 9 th |
| Inadequate access to credit facilities | 3.3942 | 10 th | Poor and inadequate storage facilities | 2.8378 | 10 th |
| High cost of transport | 3.3942 | 10 th | Pest infestation | 2.6757 | 11 th |

Source: Computed from field data, 2018

Note: Mean score ≥ 3.50 is major constraint

From the results in Table 5 it shows the following constraints based on their ranking. The mean scores show the severity of the constraints to price formation.

Poor feeder roads: This constraint ranked 1st in the urban and rural markets. This constraint is the most severe in both markets. Therefore, in some of the markets you find many marketers and few buyers in the market, causing the price of yam to fall mostly in favor of the buyers vice versa. Poor feeder roads could also result to high cost of transportation. It is also in **Breakage of yam:** Yam breakage is ranked 3rd and 9th as a constraint to yam price formation in the urban and rural markets respectively. This means that breakage of yam is more of a severe constraint in the urban markets than the rural markets in the zone. The price of yam reduces as the yam is broken. This is in line with Hamidu et al. 2014 who found out that yam breakage affected profit of yam in spatial markets in Gombe State, Nigeria.

Poor and inadequate storage facilities: This constraint ranked 4th and 10th in the urban and rural markets respectively in the study area, as poor and inadequate storage facilities affected the formation of price by yam marketers in the study area. Poor and

agreement with the finding of Adinya and Awoke, 2007.

Lack of many buyers: This constraint ranked 2nd and 4th in the urban and rural markets of the study area, lack of many buyers is a more severe constraint in the rural markets than the urban markets. Price of yam in the markets are affected as the marketers are at times more than the buyers then the prices are forced down at the detriment of the marketers, as transporting the yam back will cause them to incur more cost on the yam. inadequate storage facilities could lead to spoilage of the tubers and therefore the marketers are forced to sell at any price to avoid total loss. This constraint is more in the rural markets than the urban markets because some of the marketers are also producer so in that they try to sell even when the price is not too good to avoid spoilage. This is in line with the findings of Ebowore et al. 2013; Adinya and Awoke, 2007 and Asumugha et al. 2007.

Poor market information: This constraint ranked 5th and 8th in both urban and rural markets. Poor market information from other markets tends to affect price formation as the marketers don't have idea of the prevailing price of yam in other markets. This affects

the price formation because no information concerning the price at other markets, marketers may be forced to set their price below normal. This is only severe in the urban markets when compared to the rural. It is in line with the finding of Yohanna, 2015 who in the study of analysis of cowpea marketing and price trend in some selected local government areas in Kaduna State, Nigeria found out poor communication facilities as a constraint and also Shehu and Mohammed, 2017.

Activities of yam Union officials: The activities of yam union officials ranked both 6th in the urban and rural markets this hinders the price formation of yam in the study area, as some of the officials connive with the buyers to set price of yam at price that might not be too good for the yam marketers because of their selfish interest to collect kick-back from the buyers.

Activities of middlemen in the market: This constraint ranked 7th and 5th in the urban and rural markets respectively; this means that it is more severe in the rural market than the urban markets. The activities of middlemen interfere seriously in the yam price formation in the study area. The middlemen extort both the buyers and the sellers.

Pest infestation: This constraint ranked both 8th in the urban and 11th rural markets; pest infestation force marketers to sell at lower price and at times below cost just to make sure the yam don't get spoilt in their hands. This constraint is not severe in both as the mean score is below 3.50. This finding is also in agreement with Girei et al. 2013 in a separate study found out that pest

CONCLUSION AND RECOMMENDATION

Constraints to yam (*Dioscorea spp*) price formation in the urban and rural markets of the central agricultural zone of Nassarawa State, Nigeria. Primary and secondary data were used for this study; a multi-stage random sampling technique was used for selecting four (4) and four (4) rural markets from the zone. Data was analyzed using descriptive statistics, such as maximum, minimum, mean, percentages and frequencies.

The result indicated that yam marketing in the zone was dominated by Male marketers (60% and 62.5%) in the urban and rural markets. Majority 71.7% and 52.5% were married. The literate level showed that most 94.2% and 95.1% of the yam marketers had one form of education and the order. The result also indicated that yam marketers were dominated by marketers of ages

REFERENCES

Abah, D. and Tor, I.E (2012). Cost and return of cowpea enterprise in Lafia Local Government Area of Nassarawa State, Nigeria. *Journal of Production Agriculture and Technology*, 8(2): 59-67.

infestation is a constraint to the structure, conduct, and performance of cowpea marketers in Yola North and Yola South Local government area in Adamawa State, Nigeria.

Communal clashes: This constraint ranked 9th and 7th in the urban and rural markets of the study area, as areas affected with communal clashes tend to sell their produce not minding whether they are making profit or not because buyers tend not come to those areas because of fear for their lives. This is also in line with the finding of Rabirou et al. 2018 who found out that insecurity as a constraint to yam marketing in Akoko North-East L.G.A of Ondo State, Nigeria.

Inadequate access to credit facilities: This constraint ranked 10th and 2nd in the urban and rural market. It is a constraint to price formation as marketers do not have access to credit facilities to support their yam business. This constraint is more severe in the rural markets compared to the urban markets as most of the farmers also double as farmers' too. This is in line with the finding of Okoedo-Okojie, 2016.

High transportation cost: This constraint ranked 11th in the urban market and 3rd in the rural market. As high cost of transportation affect yam price formation in the rural market compared to the urban markets. This is in tandem with the findings of Rabirou et al. (2018), Hamidu et al. (2014), Fagboun 2007 and Adejobi, 2005, who all in a separate studies found out that high transport cost affected the price of marketing..

ranging between 21-50 years (57.5% and 68.8%) respectively. Majority of the marketers had years of marketing experience of between 1 -10 years (56 % and 60%) respectively. Poor feeder roads, few number of buyers, inadequate access to credit facilities, breakage of yam ranked most in the constraints to yam price formation. The foregoing showed that yam marketing was dominated by young adults, married males with one form of education or the order, there is need for improvement of roads transport and market infrastructure. Therefore it is recommended that policy intervention in the form of improving marketing infrastructure, price formation channels, and transportation facilities, road networks which may eventually reduce transport cost and enhance trade between urban and rural markets.

Adejobi, A.O (2005). Cowpea Marketing in Maiduguri, Borno State. A component of the Investigations on Building a FOOD MARKETING POLICY: EVIDENCE BASE IN NIGERIA. A paper developed under a network research programme funded by the UK department for International Development.

- Adinya, I. B and Awoke, M. U (2007) Economic analysis of yam marketing in Obubra Local Government Area of Cross River State, Nigeria. *Journal of Agriculture, Forestry, and the Social Science*, 5(1): 6-12
- Aremu, F.P., Adeyemo, R., and Olugbire, O.O (2016). Economic Analysis of Fresh Tomato Marketing in the wet season Under Tropical Conditions. *Journal of Sustainable Development*. 13(1): 1-8
- Asumugha, G.N., Ugwu, B.O, Amedu, O.C and Okwor, G.C, (2007). Seed Yam Marketing in Nigeria: Determinants and constraints. *Proceeding of the 13th International society for tropical root crops(ISTRIC) Symposium*, pp 656-663
- Bamire, A.S and Amujoyegbe, B.J. (2005). Economic analysis of land improvement technique in small-holder yam based production system in the agro-ecological zones of south-western Nigeria. *Journal of Human Ecology*, 18(1): 1-12
- Barlett, J. E, Kotrlik, J. W. and Higgins, C. C (2001). Organizational research; determines appropriate sample size in survey research. *Information technology, learning and performance Journal*, 19(1):43-50
- Defra (2008): Ensuring the UK's food security is a changing world, a Defra Discussion paper. Department for Environment, food and Rural Affairs
- E.I.A.(2019).EnergyInformationAdministration.<https://www.eia.doc.gov/cabs/Nigeria/background.html>. Retrieved July,09,2019
- Ebewore, S.O., and Ukwuaba, S.I. (2013). Analysis of price variation in the marketing of garri in Delta State, Nigeria. *Sustainable Agriculture Research*, 2(1):181-187
- Fagboun, A.B. (2007). Analysis of Cowpea Retail marketing in Abeokuta North Local Government Area, Ogun State. A thesis submitted to the department of Agricultural Economics and Farm Management. Federal University of Agriculture Abeokuta.45pp
- Food and Agriculture Organization (FAO) 2019. The State of Food and Agriculture. Moving forward on food loss and waste reduction. Rome . licence: CC BY-NC-SA 3.0 IGO
- Girei, A.A, Dire,B., Saliu, M and Iliya, M.M (2013). Assessment of problems affecting the structure , Conduct and Performance of cowpea marketing in Yola North and Yola South Local Government Areas in Adamawa State, Nigeria . *British Journal of Marketing Studies*. 1(4): 41-50
- Gneezy, A. (2017). Field experimentation in marketing research. *Journal of Marketing Research*, 54(1):140-153
- Hamidu, K; Adamu, Y. and Mohammed, S.Y, (2014), Spatial Profit Differential of Yam marketing in Gombe Metropolis, Gombe State, Nigeria *Journal of Biology, Agriculture and Healthcare*, 4(12):72-76
- Ignite (2013). Fiscal Management Reform Gaining Traction in Nigeria Again. *The Nigerian Economy, Reforms, Emerging Trends and Prospects*. CPED monograph series no, 8.
- Katanga, Y.N., Hussaini, I., Wudil, A.H and Haruna, U (2016). Analysis of Cowpea Marketing Channel in Kiyawa Local Government Area of Jigawa State, Nigeria. *International Journal of Agricultural Policy and research*, 4(9):157-201.
- Mersha, M., Demeke, L. and Birhanu, A.(2017). Analysis of Factors Affecting Potato Farmers' Gross Margin in Central Ethiopia: The case of Holeta District. Online at <http://mpira.uni-muenchen.de/92775>
- Minot, N.(2010). "Transmission of World food Price changes to markets in sub-saharan Africa." Discussion Paper No.1059. International Food Policy Research Institute, Washington, DC. <http://www.ifpri.org/publication/transmission-world-food-price-changes-markets-sub-saharan-africa>
- Nasarawa State Agricultural Development Project.(2010). Nassarawa State Production Potentials, Annual Publication
- National Bureau of Statistics (NBS).(2012). LSMS-Integrated surveys on agriculture: general household survey panel 2010/2011. Available at :www.Nigerianstat.gov.ng/pages/download/194 accessed on 21st June,2022.
- OECD/FAO(2014). OECD-FAO Agricultural outlook 2014, OECD Publishing, Paris DOI: <http://dx.doi.org/10.1787/agroutlook-2014-en>.Retrieved on 24/09/2019

- Okoedo-Okojie, D.U, and Okwuokenye, G.F (2016). Characteristics and potentials of retail marketing of yam in Delta State, Nigeria: Implication for Extension Services. *Journal of Applied Science and Technology*, 14(2):1-8
- Plastina, A. (2011). World appared fiber consumption survey Washington DC, FAO/ICAC.
- Rabirou, K; Abdulhammed, A.G and Ismaila, D.S. (2018). Analysis of yam marketing in Akoko – North East Local Government Area of Ondo State Nigeria. *International journal of Agric marketing*. 5(1):170-177
- Sanusi, M.M, and Dada, O.I (2016). Profitability Analysis of Marketing Tomato in Odeba Local Government Area of Ogun State, Nigeria. *Ife Journal of Agriculture*, 28(2):91-101.
- SDG, (2019). The Sustainable Development Goals Report.
- Shehu, A.S and Mohammed, A.S (2017). Economic Analysis of Tomato Marketing in IlorinMetropolis Kwara State, Nigeria. *Journal of Agricultural Science*. 62(2):179-191.
- Shimeles, A. (2010). Growth and Poverty in Rwanda: Understanding the linkages .AFDB work in Progress.
- Structure, conduct and performance of cowpea marketing in Yola North and Yola South Local Government Areas of Adamawa State, Nigeria. *British Journal of Marketing Sudies*, 1(4):41-50.
- Tuyishime, N. (2014). An Assessment of the Transmission of International Prices into Rwanda’s Rice Market. An unpublished M.Sc. thesis. Department of Agricultural Economics, University of Nairobi, Kenya.
- Verter, N and Becvarova, V (2014). Yam production as pillar of food Security in Logo Local government area of Benue State, Nigeria. *European Scientific Journal*, 10(31): 27-42
- Vision 20:2020: Nigeria Vision 20:2020. pp.52-53.
- World Bank (2018). The global economic prospect, Washington DC
- Yohanna, J.(2015). Analysis of Cowpea Marketing and Price Trench in Some Selected Rural and Urban Markets of Kaduna State, Nigeria. Unpublished M. Sc. Thesis. Ahmadu Bello University, Zaria.
- Zaknayiba, D.B and Tanko,l (2013). Cost and returns analysis of yam production among Small Scale farmers in Karu Local government area, Nasarawa State, Nigeria *PAT*,9(1):73-80.